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District 7 Fire Rescue
Bexar County, Texas

Rural Water Supply Operations Seminar
2-hr Water Supply Drill
April 3, 2014
Summary Report

The Purpose

- The purpose of the seminar and drill was to review the basics of rural water supply operations and to practice water supply operations in a non-hydranted setting.
- The drill also allowed mutual aid companies to work together in a real-life training situation.

The Seminar

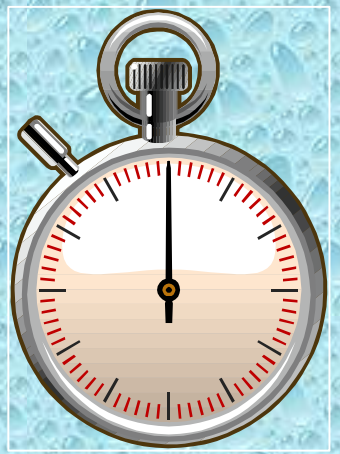
- The 2-day seminar started on Wednesday with a 4-hour classroom session to review the basics of rural water supply operations.
- The review session was held at the Latin American Bible Institute.
- Once the classroom part was done, the seminar continued with several hours of practical work on fill-site and dump site operations.
- The program concluded on Thursday with the 2-hr ISO tanker shuttle exercise and program review.
- Seminar participants were from the San Antonio area.

The 2-hour Water Supply Drill

- The tanker shuttle drill was held on April 3rd at Government Canyon State Park.
- The drill attempted to replicate the 2-hour Water Supply Delivery Test used by ISO in their evaluation of fire department water supply capabilities.
- While everyone in the fire service may not agree on ISO's evaluation of fire department capabilities, the 2-hour test is still a reasonable standard by which fire departments can compare their water supply operations.

The ISO Test

- The ISO 2-hour Water Supply Delivery Test has three critical time segments:
  - 0:00 to 5:00 minutes
  - 5:01 to 15:00 minutes
  - 15:01 to 120:00 minutes



ISO Test *0:00 to 5:00 Minutes*

- A drill location is selected and the units due to respond on the first-alarm assignment are dispatched.
- Time starts when the first engine arrives on the scene and comes to a complete stop.
- There is no requirement to flow water during the first 5 minutes, but the crew must be prepared to flow water once the 5-minute mark is reached.

ISO Test *5:01 to 15:00 minutes*

- At the 5-minute mark, a flow of at least 250 gpm must be started - and it must be sustained.
- During the next 10-minutes, crews can work to further develop their water supply and increase their flow, however…
- At the 15-minute mark (5+10), whatever amount of water is flowing at that time must be maintained for the remainder of the 2-hour test.

ISO Test *15:01 to 120:00 minutes*

- Once the 15-minute mark has been reached, the remainder of the 2-hour test is really just about ***sustaining*** the flow.
- The ISO test includes the simulation of automatic mutual aid response and allows additional water supply units to arrive and assist in the delivery process as would happen on a real incident.
- The real advantage of the ISO test is that it gives a fire department the chance to see where improvements can be made in their water supply delivery process.

It is one thing to say that your fire department can deliver 500 gpm for two hours – it is another thing to prove it in a real-life drill scenario!

Water Supply Drill Participants

- *The participants for the drill were from twelve different fire departments and the water hauling apparatus was representative of the type of water supply support that would respond to a structure fire in District 7 ESD area.*

Drill Participants

- District 7 Engine 115
  - 1,500 gpm pump w/750 gal tank
- District 7 Engine 116
  - 1,500 gpm pump w/750 gal tank

Drill Participants

- District 7 Tender 115
  - 1,000 gpm pump w/3,000 gal tank
- District 7 Tender 116
  - 1,000 gpm pump w/2,000 gal tank

Drill Participants

- Helotes Tender 1
  - 500 gpm pump w/2,000 gal tank

- Medina Lakes Tender 2397
  - 500 gpm pump w/2,000 gal tank

Drill Participants

- Leon Springs Engine 3
  - 1,250 gpm pump w/3,000 gal tank

The Drill Begins

District 7's Engine 115 was the first unit to arrive on the scene. Six hundred feet of 5-inch supply line had already been laid out to two Blitzfire devices which simulated an attack pumper. The stopwatch was started when Engine 115's driver applied the air brakes. Tender 115 (3,000 gallons) arrived shortly thereafter and went to work setting up a "nurse tender" operation.

Nurse Tender Operations

"Support the fire attack at all costs" was the mantra during these early moments of the operation. The nurse tender was able to provide initial water supply support until such time that a dump site could be set up.

Dump Site Operations

Engine 115's crew used Tender 115's dump tank and wasted no time setting up for dump site operations. Meanwhile, water flow was underway at 250 gpm to the Blitzfire from Tender 115.

Dump Site Operations

Tender 115 supplied a 3-inch hose line that fed one side of a 2-1/2” x 2-1/2” x 5” clappered siamese connected to the supply line feeding the simulated attack pumper. Once the operation switched to a dump site operation, Engine 115 took over and supplied dual 3-inch lines into the siamese.

Dump Site Operations

At around the 8:20 minute mark, the first load of water was dumped into a dump tank – and a second dump tank was deployed.

Dump Site Operations

Engine 115 had now switched to drafting out of the dump tank, so Tender 115 broke free from nursing and dumped the remainder of its water into the dump tank before heading to be reloaded. Water flow was moved to 448 gpm at the 15-minute mark.

Dump Site Operations

At around the 27-minute mark – no tenders were present at the dump site – making for a few tense moments.

Dump Site Operations

At just around the 30-minute mark, Tender 116 arrived at the dump site. This was the first tender to return from the fill site and its 2,000 gallons of water were much needed.

Dump Site Operations

A third dump tank was dropped with expectations of increasing flow . The key was building a transfer device – which required some additional suction hose.

Dump Site Operations

Another point were things were a little “tight.” However, water flow was never interrupted.

Dump Site Operations

Just in the nick of time, another tender arrives and provides much needed water. The flow was moved to 825 gpm at the 67-minute mark where it was sustained for the remainder of the drill.

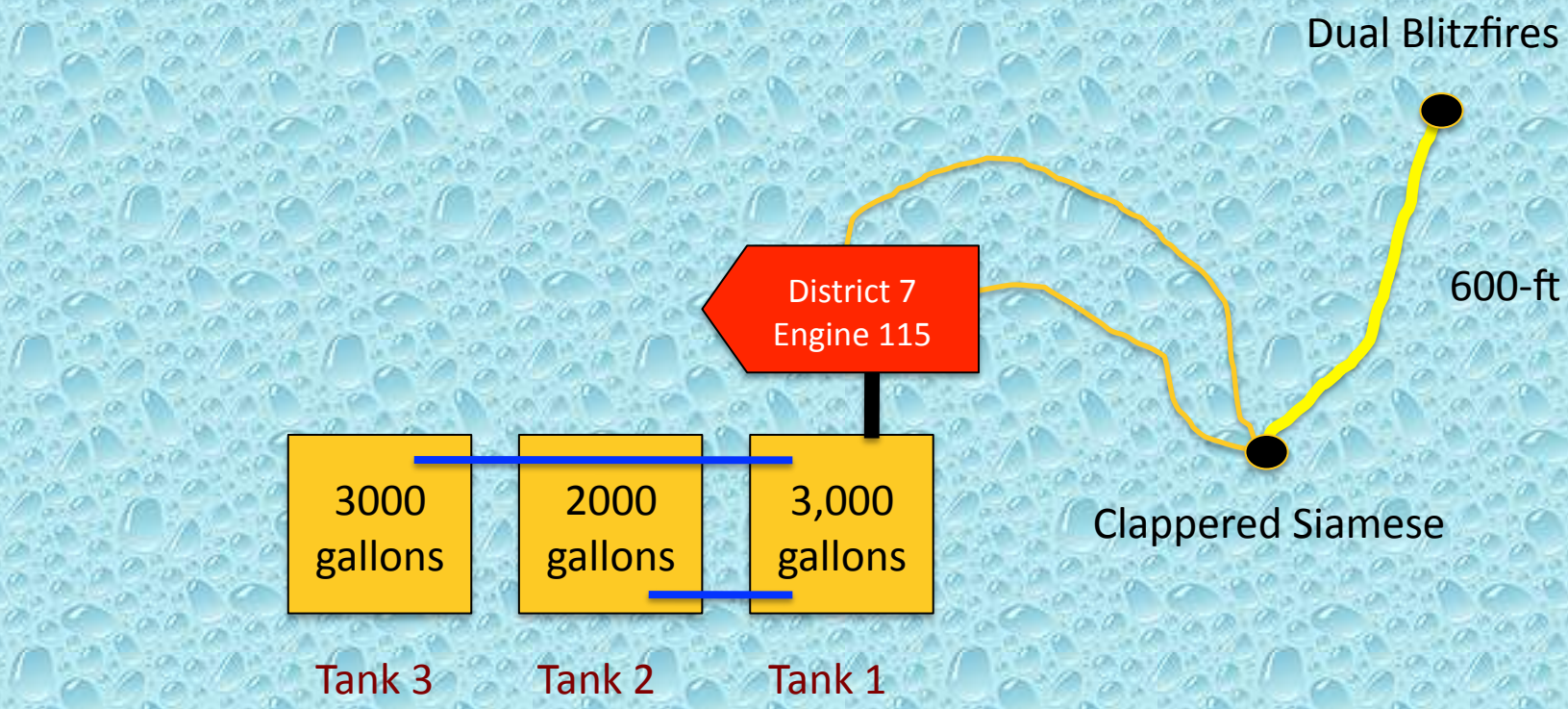
Dump Site Operations

A three dump tank operation was now fully operational and supporting the 825 gpm flow.

Water Transfer Operations

A great looking stream from this jet siphon. This is the type of stream that everyone should shoot for to accomplish – every time.

Final Dump Site Layout



The Fill Sites

- For this drill – one fill site was used.
- This lone fill site was a fire hydrant located in a nearby residential development which provided a 6-mile round trip for the units hauling water.
- The fire hydrant provided sufficient water supply for the shuttle and was located in an area that provided easy access for the tenders.
- A single, 1,500 gpm pumper was used at the fire hydrant to support tender loading.

Fill Site Operations

District 7's Engine 116 (1,500 gpm) operated the lone fill site using a fire hydrant. In this area of Texas, there is very little dependable surface water – so fire hydrants are a critical resource. Using a pumper on a fire hydrant ensures a quick loading rate (1,000 gpm+).

Fill Site Operations

An LDH manifold was used as the loading valve and one member staffed the valve and controlled flow into the tenders. The valve was supplied by Engine 116 off of the fire hydrant.

Fill Site Operations

When possible, the tenders were filled using 5-inch hose. For those tenders that had smaller direct fills, 3-inch fill lines were used.

Fill Site Operations

A 2,000 gallon tender being filled in just under 3-minutes – this includes hook up time!

Fill Site Operations

When used in short lengths, 3-inch hose can be effective in loading tankers - however, higher discharge pressures are needed at the fill site pumper.

Fill Site Operations

This fire hydrant provided ample water for the loading operation. The engine driver prepared the fire hydrant for additional flow (ball valve on 2-1/2” outlet) but this was never needed.

The Results

- The drill was stopped at the 90-minute mark due to time limitations.
- Water flow was never interrupted!
- An estimated 47,410 gallons of water were flowed through the Blitzfires during the drill producing an average flow rate of 588 gpm.

The Lessons Learned

- At this drill, the dump site was set-up very quickly and crews really hustled to sustain the water flow in the early stages.
- The use of the 3,000-gallon tender as a nurse tender was critical to the early delivery of water while the dump site was constructed.
- The parking lot layout provided ample space for this shuttle operation and traffic flow was not a problem.

The Lessons Learned

- A tanker fill-site needs to run like a NASCAR pit stop. Anything that slows down the loading of tankers is going to reduce the efficiency of the tanker shuttle.
- At this drill, the fill site crew did a great job of keeping up with the pace. There was only one fill site in operation – which meant that all members of the loading crew had to be "on their game" at all times.

The Lessons Learned

- The use of threaded connections on direct fill lines can slow down an operation. The camlock style fitting used at this drill reduced the amount of time spent making and breaking fill line connections.
- Jet siphons, suction hose, and dump tanks are needed at most every dump tank operation – therefore, it is wise to carry those items on every tanker.

The Lessons Learned

- Since much of the District 7's response area requires the use of fire hydrants to refill tenders, this drill proved the benefit of committing a engine to the fill hydrant so that tenders can be loaded at 1,000 gpm.
- There were only five tenders hauling water over the 6-mile loop. If those tenders would have had to fill directly off of the fire hydrant, then this type (588 gpm) of sustained flow would probably not have occurred.

Summary

- The drill was a success. For the new folks, they got to see how dump tank operations work.
- For the older, experienced folks, it was a chance to practice their "craft."
- The success of the drill showed the importance of mutual aid response practices and procedures – and the importance of mutual aid interoperability.
- Many thanks to District 7 Fire Rescue for sponsoring and hosting this seminar.

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This program was developed by
GBW Associates, LLC

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